COUGARS (*PUMA CONCOLOR*) IN THE NORTHWEST TERRITORIES

Northwest Territories Resources, Wildlife & Economic Development

COUGARS (*PUMA CONCOLOR*) IN THE NORTHWEST TERRITORIES

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ABSTRACT

Extralimital reports of cougars (*Puma concolor*) at the northern limits of their range are rare. We documented at least 31 occurrences of cougars from the Northwest Territories between the years 1978 and 2001. Our evidence suggests at a minimum, transient cougars are regular visitors to the Northwest Territories however we believe a small, but viable, breeding population currently resides here. Future considerations, should breeding populations of this species become confirmed and established in the Northwest Territories, are addressed.

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INTRODUCTION

Puma concolor has the widest distribution of any mammal in the western hemisphere, except humans (Scott 1998). Its range extends from Chile, through the western United States, to the Yukon (Lindzey 1987; Beier 2000). Although this felid is known by many names throughout its range (mountain lion, puma, panther, cougar), cougar is the common name most frequently used in northern North America. The most likely subspecies of cougar at the northern extreme of their range is *P. c. missoulensis*, the same subspecies found in Alberta and northern British Columbia (Klassen 2000).

In Alberta and northern British Columbia, cougars are primarily found in forested habitats similar to that used by its primary prey, white-tailed deer (*Odocoileus virginianus*) and mule deer (*O. hemionus;* Dixon 1982). It is often difficult for the people to observe cougars in the wild as the species generally has a low population density and is cryptic and highly mobile (Ross et al. 1996). Forest cover may also obscure or reduce an observer's view and lynx (*Lynx canadensis*), wolf (*Canis lupis*), coyote (*C. latrans*), feral or domestic animals may be mistaken for cougars.

Kuyt (1971) and Gau et al. (2001) noted that accounts of cougars in the Northwest Territories (NWT) are exceedingly rare. Kuyt (1971) documented three observations of cougars from the Wood Buffalo National Park (WBNP) area from 1962, 1967, and 1970. There were seven cougars harvested from the NWT in 1919-1920 (Novak et al. 1987) however Obbard et al. (1987) noted those data,

summarized from fur trading records, represent where the skins were sold and may not be the actual area of harvest. In other parts of Canada, there has been evidence of cougars outside their normal range in the Yukon Territory, Alberta, Saskatchewan, Manitoba, and Ontario northwest of Lake Superior (Nero and Wrigley 1977, Anderson 1983, Alberta Fish and Wildlife Division 1992, Klassen 2000). Gau et al. (2001) recently documented the occurrence of cougars in and around the NWT. This report should be considered an update and expansion of their effort and includes details that were not permitted in a forum such as a peer-reviewed journal.

METHODS

Adding to the database constructed by Gau et al. (2001), cougar sightings were recorded from first hand visual accounts from Government of the NWT Department of Resources, Wildlife and Economic Development (RWED) Wildlife personnel, Parks Canada staff, and first hand sightings relayed directly to RWED Wildlife or Parks Canada staff. A sighting was considered direct if the observer reporting the event was the primary witness, the distance observed was less than 250 metres, and identifiable characteristics (including colour, tail length, fur length, and body size) were described without prompting.

Reports lacking in descriptive detail and reports of only cougar tracks were considered indirect and entered into a separate database. Tracks of cougar and lynx can be hard to distinguish based on size alone and the competency of the

observers can easily be called into question.

RESULTS

Note none of the cougar occurrences we report below neither included cubs nor were wholly substantiated by the presentation of a carcass or photograph.

Direct Occurrences

We catalogued 31 direct visual sightings of cougars between the years 1978 and 2001 in the NWT (Table 1; Fig. 1; Appendix A). However because large distance movements have been reported for some cougars, we wanted to reduce the probability of reporting the same animal.

Filtered Direct Occurrences

Anderson et al. (1992) reported maximum dispersal distances for 33 male and 32 female cougars from various North American populations to be 274 and 140 kilometres respectively. Logan and Sweanor (2000) reported a 483 kilometre dispersal for an individual cougar from his natal area to his mortality site, at 30 months of age. Thus, we filtered our database to yield one sighting per year from a 200 kilometre radius surrounding its coordinates. Our filtered database has 20 direct visual sightings of cougars in the NWT (Table 1; Fig. 2).

Indirect Occurrences

Ensuring quality control when evaluating reports of cougars from outside sources is an innate problem (Scott 1998). We investigated 12 occurrences of cougars where descriptive details were considered indirect but we recorded them

nonetheless (Fig. 3; Appendix B). All occurrences of tracks were included in the "indirect" category because of the similarities of cougar and lynx tracks. Also, we received numerous reports of trappers experiencing problems with their trap-lines (i.e. missing animals from traps) and suspected cougars as the culprits because of tracks. In those instances however, specifics were generally not relayed and thus are not reported by us.

Direct and Indirect Occurrences Outside the NWT

Representatives from agencies with responsibilities outside our jurisdiction reported 15 cougar occurrences to us from outside the NWT border (Fig. 4; Appendix C).

FIGURE 1. Location of the direct cougar occurrences (n = 31) with the year of sighting (and RWED ID no.; See Appendix A) in the Northwest Territories.

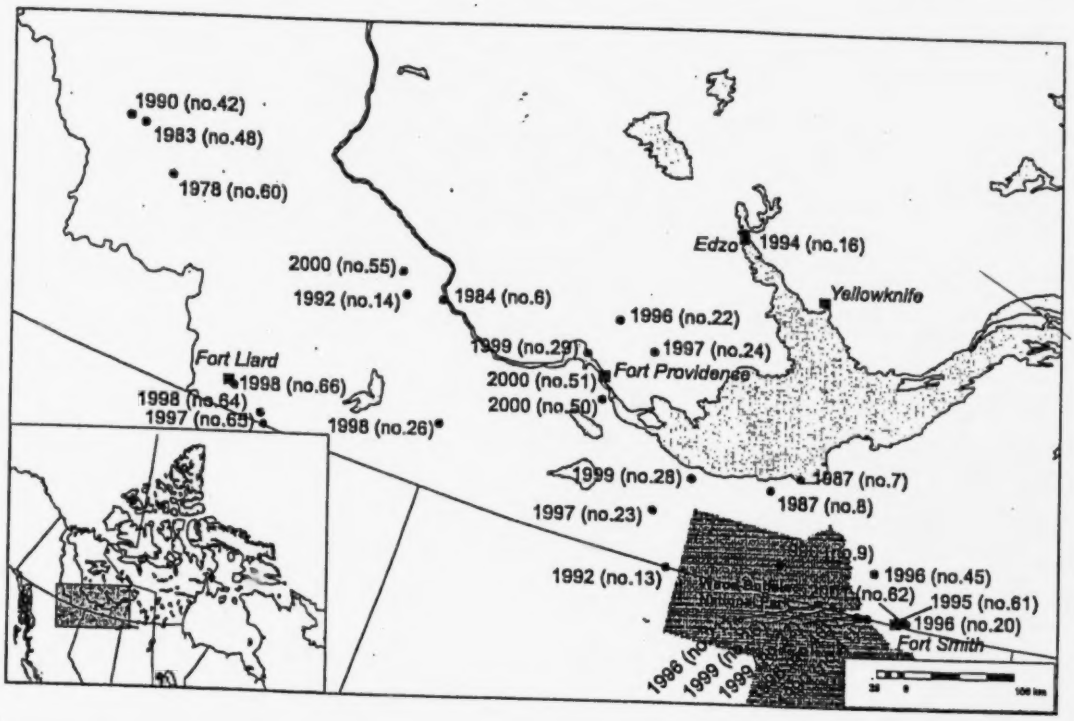

FIGURE 2. Location of the filtered direct cougar occurrences (n = 20) with the year of sighting (and RWED ID no.; See Appendix A) in the Northwest Territories.

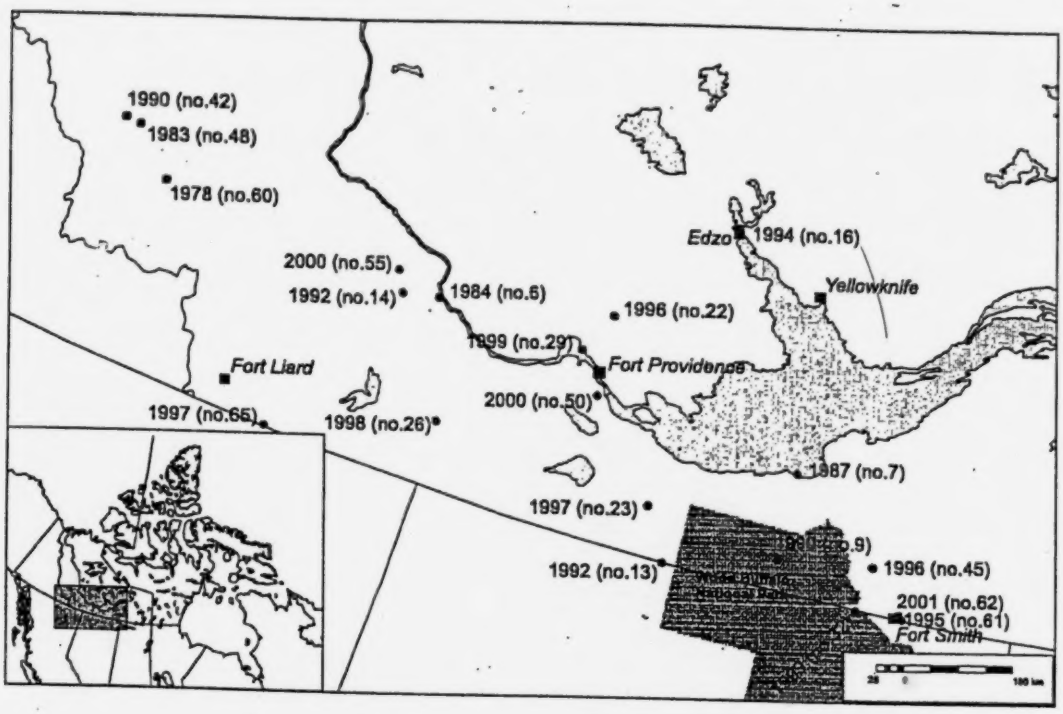

FIGURE 3. Location of the indirect cougar occurrences (n = 12) with the year of sighting (and RWED ID no.; See Appendix B) in the Northwest Territories.

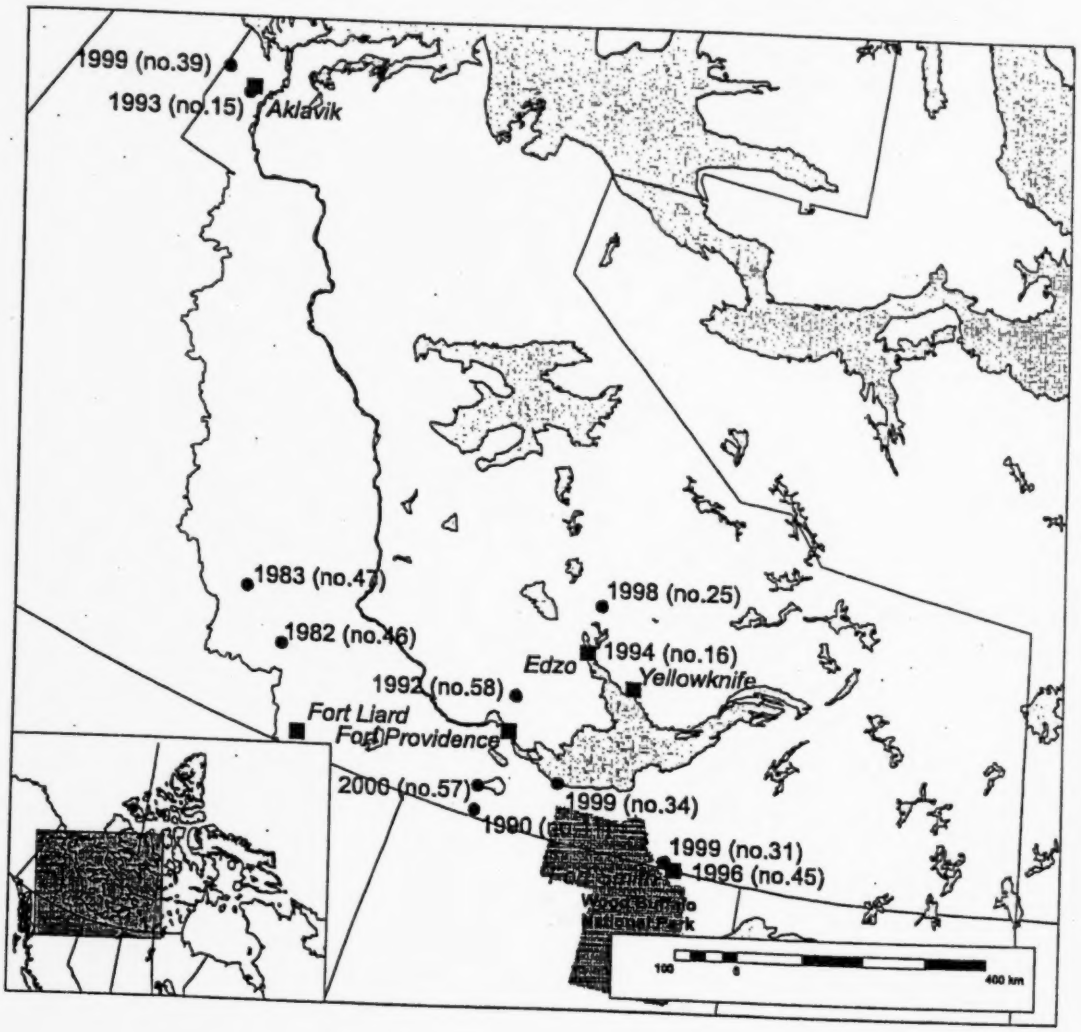

FIGURE 4. Location of cougar occurrences (n = 15) outside the Northwest Territories with the year of sighting (and RWED ID no.; See Appendix C).

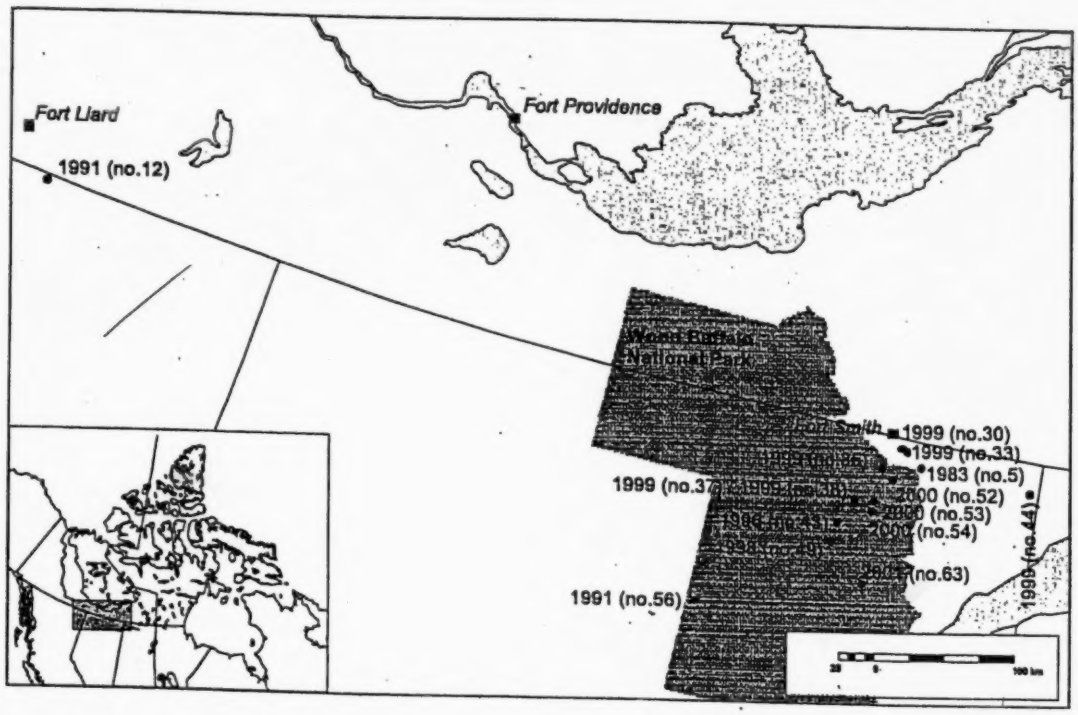

TABLE 1. Year and sighting general location for the direct cougar occurrences in the Northwest Territories.

Year	General Location	Year	General Location
1978[1]	Virginia Falls, Nahanni National Park	1996	Near the community of Fort Smith
1983[1]	Hell Roaring Creek, Nahanni National Park	1997	Near Chan Lake by Fort Providence
1984[1]	Near the community of Jean Marie River	1997[1]	Near the community of Enterprise
1987[1]	Near the community of Pine Point	1997[1]	Near the British Columbia-NWT border
1987	Near the community of Pine Point	1998	Near the British Columbia-NWT border
1990[1]	Near the community of Fort Smith	1998	Near the community of Fort Liard
1990[1]	Hell Roaring Creek, Nahanni National Park	1998[1]	Near the community of Trout Lake
1992[1]	Alberta-NWT border	1999[1]	Near the community of Fort Providence
1992[1]	Liard Trail-Mackenzie Highway junction	1999	Near the community of Hay River
1994[1]	Near the community of Edzo	1999[1]	Near the community of Fort Smith
1995[1]	Near the community of Fort Smith	1999	Near the community of Fort Smith
1996[1]	60 km north of Fort Providence	2000[1]	Southwest of Fort Providence
1996[1,2]	Near the community of Fort Smith	2000[1]	Near the community of Fort Simpson
1996	Near the community of Fort Smith	2000	Near the community of Fort Providence
1996	Slave River near Wood Buffalo National Park	2001[1]	Near the community of Fort Smith
1996	Near the community of Fort Smith		

[1] Year and location in filtered location database (Fig. 2).

[2] Two cougars were observed together.

DISCUSSION

It appears cougars have expanded their North American range into the NWT (Gau et al. 2001; this report) and we believe a small, but viable, breeding population likely exists here. As a hunting season for General Licence Holders (GHL) on white-tailed deer and mule deer was established in 1998, and elk (*Cervus elaphus*) and are now known to regularly range into the southern NWT

(GNWT unpublished data), there appears to be an adequate cervid prey base to sustain a NWT cougar population into the future. Also, resident populations of moose (*Alces alces*), woodland caribou (*Rangifer tarandus*), Dall's sheep (*Ovis dalli*), mountain goats (*Oreamnos americanus*), and snowshoe hare (*Lepus americanus*) may contribute as dietary items for cougars in the NWT (Spalding and Lesowski 1971; Ross and Jalkotzy 1996; Ross et al. 1997). Ultimately however, it remains unknown if the cougar occurrences we documented only represent transient individuals. Also, we acknowledge we cannot accurately determine trends in cougar abundance in the NWT from the reports we tabulated. Should it become more conclusive that a resident cougar population exists in the NWT (for example: an increase in the amount of cougars seen with cubs), we will need to consider the potential affects cougars have on the behaviour, distribution, composition, and density of some ungulate species (Compton et al. 1995, Ross and Jalkotzy 1996; Wehausen 1996; Kunkel et al. 1999).

The indirect cougar occurrences near Aklavik, one in 1993 and one in 1999, are noticeably removed from the other locations in our database. If accurate, then we assume the Aklavik reports to be either transient individuals from the Yukon (Klassen 2000), or long range movements of transient individuals moving north using the Mackenzie River Valley as a travel corridor (Alberta Fish and Wildlife Division 1992). If cougars are indeed in the Inuvialuit Settlement Region, then the reports are truly remarkable as cougars are generally considered a short haired feline (Beier 1999).

Management implications for cougars in the NWT are currently limited. Since no cougar hunting season currently exists in the NWT, cougars cannot be hunted legally by resident hunters. However, the Federal NWT Act guarantees all status Indians and Inuit the right to subsistence hunt any species not in danger of extinction on unoccupied Crown lands. In that circumstance however, it is illegal to keep or sell the hide for trophy purposes.

RECOMMENDATIONS

1. Cougars are frequently given a "high profile" by wildlife managers and the public because of their charismatic nature, intimidating size, and predatory behaviour (British Columbia Resources Inventory Branch 1998). However events such as the cougar attack and resulting human death in Banff, Alberta, in January 2001 can perpetuate negative attitudes and hysteria against cougars in the public. Although North American cougar attacks on humans have been increasing in recent years, fatalities are very rare (Beier 1991). In the last 110 years, there have been 96 documented cougar attacks and 18 of those have had human fatalities (Fitzhugh 2000). However since 1991, there have been 37 documented cougar attacks and 8 of those have had human fatalities (Fitzhugh 2000 updated with January 2001 data). Thus, a safety and general information packet (i.e. a published "Wildlife Sketch") and/or species description link on: http://www.nwtwildlife.rwed.gov.nt.ca/NWTwildlife/nwtwildlife.htm should be

made available to the public. This information would aim to inform, provide safety information, and reduce potential public apprehension towards cougars.

2. Collecting sighting reports should be continued. The Wildlife and Fisheries Division should act as the liaison between Parks Canada (Parks Canada Wardens) and Regional RWED offices (GNWT Biological field staff and Wildlife Officers) to biannually tabulate future cougar occurrences.

3. With the high incidence of cougars in Wood Buffalo National Park (Gau et al. 2001), aerial or ground based surveys conducted in the North Slave and South Slave Regions (i.e. moose, bison or beaver lodge surveys) should also incorporate a search for, and document (photographs, measurements, etc...), cougar tracks in bare dirt or snow. Cougar track counts are commonly made along roads from a moving vehicle or, in snow, along transects from helicopters particularly in areas with open forest cover [see reviews by Scott (1998) and British Columbia Resources Inventory Branch (1998) for further information].

4. The current Government of the NWT "Species at Risk" programme states cougars are of "Undetermined" status, at the limit or edge of their range in the NWT, and have a small distribution (less than 10% of NWT) and hence small population is expected (Government of the Northwest Territories 2000). If cougars' range in the NWT includes the Inuvialuit, then regulatory agencies should acknowledge cougars may range in > 10% of the NWT's

landmass and thus the cougar population in the NWT may be larger than first estimated.

5. Should it become conclusive that a resident population of cougars exists in the NWT, local hunter and trapper oganizations should be advised of the potential affects cougars have on the behaviour, distribution, composition, and density of some ungulate species (Compton et al. 1995, Ross and Jalkotzy 1996; Wehausen 1996; Kunkel et al. 1999).

6. When the first cougar in the NWT is eventually harvested, or carcass (road-killed or otherwise) is found, a detailed necropsy should be promptly conducted ensuring the following are collected: the skull, stomach contents, ovaries and uterus (if female), and muscle and hair samples for DNA analysis. The necropsy protocol should also include measurements of: noting of the overall animal health and condition of internal organs, condition of the teeth, approximate age, high and low neck circumference, body length, tail length, chest girth, front and hind pad widths and lengths, head circumference, skull length, zygomatic breadth, upper and lower canine widths at the tips, upper and lower canine widths at the base, nipple distension (if female), and body weight.

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H.D. Cluff, S. Douglas, B. Bergman, C. Lafferty, M. Rosen and the other observers and trappers that took the time to report their findings directly to the interested Wardens, Biologists, and Wildlife Officers.

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APPENDIX A. Direct cougar occurrences in the Northwest Territories (n = 31).

Year:	1978[1].
Month/Season:	April.
Reported to:	Robert Gau, Wildlife and Fisheries, RWED.
Type:	Visual.
Coordinates:	61° 36' N latitude, 125° 44' W longitude.
Location:	Virginia Falls, Nahanni National Park.
Additional comments:	Seen while flying on the edge of the river above Virginia Falls standing approximately 10-15 yards off on the ice in early April.
RWED ID no.:	60.

Year:	1983[1].
Month/Season:	August.
Reported to:	Bill Thorpe, Warden, Nahanni National Park.
Type:	Visual.
Coordinates:	61° 53' N latitude, 126° 30' W longitude.
Location:	Near the Hell Roaring and Flood Creeks, on the bank of the South Nahanni River, Nahanni National Park.
Additional comments:	Reported by a group of Belgian canoeists. The leader described it as a puma and noted a reddish-brown pelage and a long tail. Although from Europe, the leader has travelled extensively in western North America aware of the different feline species. At least 2 different individuals observed the animal.
RWED ID no.:	48.

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[1]Denotes a mapped filtered occurrence (Table 1; Fig. 2).

Year: 1984[1].
Month/Season: Winter.
Reported to: Robert Gau, Wildlife and Fisheries, RWED.
Type: Visual.
Coordinates: 61° 31' N latitude, 120° 38' W longitude.
Location: Jean Marie River.
Additional comments: Seen just outside the community. Tan coat and long tail were clearly visible as it crossed the road.

RWED ID no.: 6.

Year: 1987[1].
Month/Season: Summer.
Reported to: Al Helmer, Renewable Resources Officer.
Type: Visual.
Coordinates: 60° 59' N latitude, 114° 01' W longitude.
Location: Near Paulette Bay.
Additional comments: The mail truck driver between Pine Point and Fort Resolution claimed to have seen a cougar twice on the highway. The long tail was what convinced her it was a cougar. She had trapped lynx with her father and appeared to know the difference between the two animals.

RWED ID no.: 7.

Year: 1987.
Month/Season: Summer.
Reported to: Al Helmer, Renewable Resources Officer.
Type: Visual.
Coordinates: 60° 50' N latitude, 114° 28' W longitude.
Location: Pine Point.
Additional comments: Three Cominco employees, all from British Columbia and either cougar hunters or cougar hunters with hounds, while having lunch near Pine Point watched a cougar walk out onto a small gravel pile ~100 yards away from them. They then walked to within 100 ft of the animal before it got up, stretched, then loped into the bush. They said it was a female and in appeared in good condition.

RWED ID no.: 8.

Year:	1990[1].
Month/Season:	Summer.
Reported to:	Sholto Douglas, Renewable Resources Officer.
Type:	Visual.
Coordinates:	60° 16' N latitude, 114° 00' W longitude.
Location:	Highway 5, ~70mi west of Fort Smith.
Additional comments:	Buckskin coloured cougar with a long tail sitting along side the road.
RWED ID no.:	9.

Year:	1990[1].
Month/Season:	July.
Reported to:	Carl Lafferty, Senior Park Warden, Nahanni National Park.
Type:	Visual.
Coordinates:	61° 45' N latitude, 126° 45' W longitude.
Location:	Hell Roaring Creek, Nahanni National Park.
Additional comments:	A large cat with a distinguishing long tail was observed crossing a small creek, along the South Nahanni River.
RWED ID no.:	42.

Year:	1992[1].
Month/Season:	December.
Reported to:	Jerry Hordal, Renewable Resources Officer.
Type:	Visual.
Coordinates:	60° 00' N latitude, 115° 47' W longitude.
Location:	NWT border.
Additional comments:	Seen while out on the land. Tan in colour with a long tail. Observation made by a very experienced trapper.
RWED ID no.:	13.

Year:	1992[1].
Month/Season:	Winter.
Reported to:	Dave Williams, Manager, Enforcement RWED.
Type:	Visual.
Coordinates:	61° 27' N latitude, 121° 15' W longitude.
Location:	Liard - Mackenzie Highway junction.
Additional comments:	Reliable sighting by local harvesters as the animal crossed the highway. Tracks were later investigated by the Renewable Resources Officer and he also agrees it was a cougar.
RWED ID no.:	14.

Year:	1994[1].
Month/Season:	January.
Reported to:	Kim Poole, Wildlife and Fisheries, RWED.
Type:	Visual.
Coordinates:	62° 49' N latitude, 116° 04' W longitude.
Location:	Stagg River.
Additional comments:	Seen ~2mi east of Stagg River near Rae-Edzo from ~200m. Believed it was a cougar he saw as a long tail was seen and it was definitly not a fox or other animal.
RWED ID no.:	16.

Year:	1995[1].
Month/Season:	Summer.
Reported to:	Sam Ransom, Manager Fort Smith RWED.
Type:	Visual.
Coordinates:	60° 00' N latitude, 111° 53' W longitude.
Location:	Fort Smith.
Additional comments:	Seen in town on McDougald Road in the morning. Complete description of the animal was given.
RWED ID no.:	61.

Year:	1996.
Month/Season:	Summer.
Reported to:	Sholto Douglas, Renewable Resources Officer.
Type:	Visual.
Coordinates:	60° 02' N latitude, 111° 47' W longitude.
Location:	Fort Smith slide zone.
Additional comments:	A cougar had been repeated seen along the river slide zone and the Renewable Resources office had multiple reports from this area.
RWED ID no.:	20.

Year:	1996[1].
Month/Season:	Winter.
Reported to:	Robert Mulders, Wildlife and Fisheries, RWED.
Type:	Visual.
Coordinates:	60° 02' N latitude, 113° 15' W longitude.
Location:	Wood Buffalo National Park.
Additional comments:	Two cougars were observed together crossing the road right in front of the observer.
RWED ID no.:	21.

Year:	1996[1].
Month/Season:	June.
Reported to:	Kim Poole, Wildlife and Fisheries, RWED.
Type:	Visual.
Coordinates:	61° 50' N latitude, 117° 40' W longitude.
Location:	~60km north of Fort Providence.
Additional comments:	A large cat seen with a long tail. Seen ~250m away but in good light. One other observer with him also agreed it was a cougar.
RWED ID no.:	22.

Year:	1996.
Month/Season:	August.
Reported to:	Robert Gau, Wildlife and Fisheries, RWED.
Type:	Visual.
Coordinates:	60° 00' N latitude, 112° 30' W longitude.
Location:	Parson's Lake road, Wood Buffalo National Park.
Additional comments:	Just turning onto Parson's Lake road he saw a large tan coloured cat with a long tail walk across the road from ~500 feet away.
RWED ID no.:	40.

Year:	1996
Month/Season:	Fall
Reported to:	Tamara Lamb, Park Warden, Wood Buffalo National Park.
Type:	Visual.
Coordinates:	60° 00' N latitude, 112° 24' W longitude.
Location:	Near Salt Mountain.
Additional comments:	Observation made while chicken hunting and turning onto Highway 5 towards Fort Smith. He then saw a large animal run from the ditch into the trees. He did not see its head but it had catlike features, a short hair coat and a 2-3 ft long tail. He says that there is no way it could have been a lynx or a species from the canine family.
RWED ID no.:	41.

Year:	1996.
Month/Season:	September.
Reported to:	Tamara Lamb, Park Warden, Wood Buffalo National Park.
Type:	Visual.
Coordinates:	60° 23' N latitude, 112° 27' W longitude.
Location:	West of Grand Detour on the Slave River.
Additional comments:	Animal seen from a helicopter lying down beside the river bank.
RWED ID no.:	45.

Year:	1997[1].
Month/Season:	Fall.
Reported to:	Jerry Hordal, Renewable Resources Officer.
Type:	Visual.
Coordinates:	60° 25' N latitude, 116° 15' W longitude.
Location:	~15km south of Enterprise.
Additional comments:	Tan colouration and a long tail reported to be seen.
RWED ID no.:	23.

Year:	1997[1].
Month/Season:	March.
Reported to:	Michel Labine, Renewable Resources Officer.
Type:	Visual.
Coordinates:	60° 00' N latitude, 122° 56' W longitude.
Location:	Highway #7, km 0.
Additional comments:	Seen by a truck driver at the NWT-BC border while stopped at a road side pull-out.
RWED ID no.:	65.

Year:	1997.
Month/Season:	Fall.
Reported to:	Evelyn Krutko, Renewable Resources Officer.
Type:	Visual.
Coordinates:	61° 40' N latitude, 116° 58' W longitude.
Location:	Chan Lake, Highway 3.
Additional comments:	Observed a cougar crossing the road.
RWED ID no.:	24.

Year:	1998[1].
Month/Season:	Winter.
Reported to:	Al Helmer, Renewable Resources Officer.
Type:	Visual.
Coordinates:	60° 33' N latitude, 120° 00' W longitude.
Location:	Dogface Lake.
Additional comments:	While out trapping just east of Redknife Hills by Trout Lake he noticed fresh, extremely large, lynx tracks on the trail in front of him. As he got to a small lake he watched the animal loping across the lake. He caught up to it and travelled almost beside it and stated without a doubt it was a cougar. He observed the tracks several more times during the next three weeks that he was there.
RWED ID no.:	26.

Year:	1998.
Month/Season:	March.
Reported to:	Michel Labine, Renewable Resources Officer.
Type:	Visual.
Coordinates:	60° 13' N latitude, 123° 23' W longitude.
Location:	Highway #7, km 35.
Additional comments:	Just south of Fort Liard. Numerous truckers reported a skinny, bold cougar to be feeding on their unfinished lunches.
RWED ID no.:	66.

Year:	1998.
Month/Season:	June.
Reported to:	Robert Gau, Wildlife and Fisheries, RWED.
Type:	Visual.
Coordinates:	60° 04' N latitude, 122° 58' W longitude.
Location:	Highway #7, km 4.
Additional comments:	Cougar seen crossing the road by a NWT Renewable Resources Officer.
RWED ID no.:	64.

Year:	1999.
Month/Season:	December.
Reported to:	Jerry Hordal, Renewable Resources Officer.
Type:	Visual.
Coordinates:	60° 45' N latitude, 115° 47' W longitude.
Location:	~5km out along the Hay River rail-line.
Additional comments:	Tan in colour with a long tail. Observation made by a very experienced trapper.
RWED ID no.:	28.

Year:	1999[1].
Month/Season:	September.
Reported to:	Evelyn Krutko, Renewable Resources Officer.
Type:	Visual.
Coordinates:	61° 30' N latitude, 118° 01' W longitude.
Location:	Horn River Road.
Additional comments:	While four-wheeling ~10km up the Horn River Road they saw what looked exactly like a cougar and it had a long tail. When he and his wife went by the area and turned around, it was still on the road.
RWED ID no.:	29.

Year:	1999[1].
Month/Season:	September.
Reported to:	Libby Gunn, Park Warden, Wood Buffalo National Park.
Type:	Visual.
Coordinates:	60° 00' N latitude, 112° 35' W longitude.
Location:	Little Buffalo River.
Additional comments:	He saw a cougar cross Highway 5 about a half hour before dark. He clearly saw a long tail and estimated the cat was very large (almost to waist height). Observation made by someone from British Columbia and had seen cougars before.
RWED ID no.:	32.

Year:	1999.
Month/Season:	Summer.
Reported to:	Mike Rosen, Instructor Aurora College.
Type:	Visual.
Coordinates:	60° 02' N latitude, 113° 00' W longitude.
Location:	Highway 5.
Additional comments:	Crossed Highway 5 ~80 km west of Fort Smith. Another observer also spotted a cougar near the same location on the same day. There were cow buffalo and calves nearby.
RWED ID no.:	36.

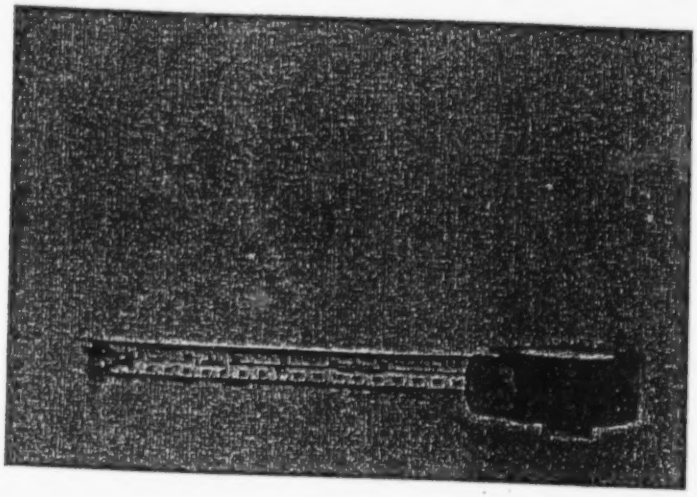
Year:	2000.
Month/Season:	May.
Reported to:	Robert Gau, Wildlife and Fisheries, RWED.
Type:	Visual.
Coordinates:	61° 21' N latitude, 117° 38' W longitude.
Location:	Fort Providence airport.
Additional comments:	Observation made by very experienced trappers. They observed a tan coloured cougar with a long tail cross the road very close to the local airport.
RWED ID no.:	50.

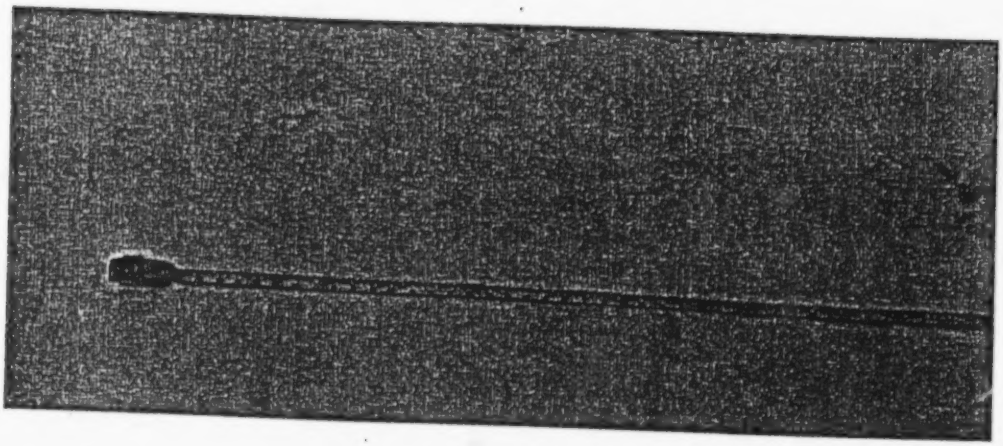
Year:	2000[1].
Month/Season:	May.
Reported to:	Robert Gau, Wildlife and Fisheries, RWED.
Type:	Visual.
Coordinates:	61° 53' N latitude, 126° 30' W longitude.
Location:	Southern shore of the Mackenzie River from Fort Providence.
Additional comments:	Observation made by very experienced trappers. They observed a tan coloured cougar with a long tail crossing the highway.
RWED ID no.:	51.

Year:	2000[1].
Month/Season:	August.
Reported to:	Douglas Tate, Conservation Biologist, Nahanni National Park.
Type:	Visual.
Coordinates:	61° 37' N latitude, 121° 27' W longitude.
Location:	~25-30km south-southeast of Ft Simpson.
Additional comments:	Approximately half way from the ferry to Checkpoint on the side of the road. The sighting was brief but clear 100m. It was much longer and bigger than a lynx with a pronounced long tail. The cougar crossed the road and headed on into the bush.
RWED ID no.:	55.

Year:	2001[1].
Month/Season:	March.
Reported to:	Libby Gunn, Park Warden, Wood Buffalo National Park.
Type:	Visual.
Coordinates:	60° 00' N latitude, 111° 53' W longitude.
Location:	Near the airport at Fort Smith.
Additional comments:	The observers saw something black-looking leap out of the ditch on the north side of the road and cross it. One described "an amazing leap". Her first thought was that it was a cougar, since it was not like any cat she had ever seen, and it had a very long tail. She further described the animal as being dark, and very streamlined, "not fluffy like a lynx." She estimates the animal was about 100 to 150 metres away, and she only saw it for 4 or 5 seconds. Site later investigated by Parks Canada staff and photos recorded (Fig. 5).
RWED ID no.:	62.

FIGURE 5. Suspected cougar tracks identified in RWED ID number 62, near the Fort Smith airport. Tracks measured 5 inches across. Photos reprinted with permission (Mark Bradley, Parks Canada Wildlife Biologist).





APPENDIX B. Indirect cougar occurrences in the Northwest Territories (n = 12).

Year:	1982.
Month/Season:	July.
Reported to:	Tom Hurd, Warden, Parks Canada.
Type:	Visual.
Coordinates:	61° 20' N latitude, 124° 55' W longitude.
Location:	South Nahanni River on the Prairie Creek flood plain (near mouth).
Additional comments:	While camped at the Forestry cabin campsite in Deadmen Valley, 3 or 4 people claim they saw a large cat with a long tail. Observation distance was ~150m. A search for tracks yielded nothing.
RWED ID no.:	46.

Year:	1983.
Month/Season:	July.
Reported to:	Dave Milne and Bill Thorpe, Wardens, Parks Canada.
Type:	Visual.
Coordinates:	61° 52' N latitude, 126° 35' W longitude.
Location:	Between Moose Ponds and Nahanni Butte.
Additional comments:	A large cat was seen pursuing a cow moose on the South Nahanni River (streambank), near Azure Creek, ~50 miles upstream from the confluence with the Broken Skull River. The tourist group leader described it as a cougar to but when asked about the tail, he didn't recall seeing it. At least two other people from the group claim they saw it.
RWED ID no.:	47.

Year:	1990.
Month/Season:	Winter.
Reported to:	Jerry Hordal, Renewable Resources Officer.
Type:	Tracks.
Coordinates:	60° 06' N latitude, 117° 53' W longitude.
Location:	Cameron Hills.
Additional comments:	He said the tracks of a cougar crossed his trap-line and he could see tail drag marks in the snow between the tracks.
RWED ID no.:	11.

Year:	1992.
Month/Season:	Winter.
Reported to:	Robert Gau, Wildlife and Fisheries, RWED.
Type:	Tracks.
Coordinates:	61° 52' N latitude, 117° 45' W longitude.
Location:	North of Fort Providence.
Additional comments:	Followed tracks that looked like very large lynx tracks except for the unusual fact that they sunk down too far into the snow. The tracks had been following woodland caribou.
RWED ID no.:	58.

Year:	1993.
Month/Season:	November.
Reported to:	Ian McLeod, Renewable Resources Officer.
Type:	Tracks.
Coordinates:	68° 07' N latitude, 135° 00' W longitude.
Location:	Aklavik.
Additional comments:	After an experienced trapper lodged several complaints about something bothering his traps, and having a number of lynx removed from his trap-line, he spotted large cougar tracks. Pictures were reported taken of the tracks and supposed tail drag-marks can also be seen.
RWED ID no.:	15.

Year:	1995.
Month/Season:	Winter.
Reported to:	Bernie Berman, Renewable Resources Officer.
Type:	Visual.
Coordinates:	60° 00' N latitude, 111° 53' W longitude.
Location:	Fort Smith.
Additional comments:	The animal was reported to have been in a tree in the backyard of a house on main street. The investigating Officer did not see the cougar but observed very large tracks in the snow.
RWED ID no.:	18.

Year:	1998.
Month/Season:	Summer.
Reported to:	Dean Cluff, Wildlife Biologist, North Slave Region.
Type:	Visual.
Coordinates:	63° 30' N latitude, 116° 00' W longitude.
Location:	Snare Rapids power station.
Additional comments:	Apparently spotted at the power station's dump.
RWED ID no.:	25.

Year:	1999.
Month/Season:	Summer.
Observer:	Highway 3 construction crew.
Reported to:	Dean Cluff, Wildlife Biologist, North Slave Region.
Type:	Visual.
Coordinates:	62° 48' N latitude, 116° 03' W longitude.
Location:	Stagg River.
Additional comments:	Apparently spotted by highway construction crew just south of Rae.
RWED ID no.:	27.

Year:	1999.
Month/Season:	Fall
Reported to:	Sam Ransom, Manager Fort Smith RWED.
Type:	Visual.
Coordinates:	60° 06' N latitude, 112° 15' W longitude.
Location:	Salt River.
Additional comments:	A reported cougar sighting and dog torn off its chain. Only pieces of the dog were found scattered around. No cougar tracks were seen and no one came forward with a detailed sighting report.
RWED ID no.:	31.

Year:	1999.
Month/Season:	Fall,
Reported to:	Jerry Hordal, Renewable Resources Officer.
Type:	Visual.
Coordinates:	60° 49' N latitude, 115° 47' W longitude.
Location:	Hay River.
Additional comments:	A sighting reported to the Wildlife Officers however nothing was substantiated as the investigating officers could not find any tracks.
RWED ID no.:	34.

Year:	1999.
Month/Season:	Winter.
Reported to:	Ian McLeod, Renewable Resources Officer.
Type:	Tracks.
Coordinates:	68° 17' N latitude, 136° 15' W longitude.
Location:	Fish River, Northwest of Aklavik.
Additional comments:	Similar to the 1993 account. The local trapper has been met with disbelief from others after commenting his beliefs that cougars have been raiding his trap-line. The trapper says he will no longer talk about it because no one will believe him.
RWED ID no.:	39.

Year:	2000.
Month/Season:	February.
Reported to:	Robert Gau, Wildlife and Fisheries, RWED.
Type:	Tracks.
Coordinates:	60° 27' N latitude, 118° 01' W longitude.
Location:	Tathlina Lake.
Additional comments:	Followed tracks that looked like very large lynx tracks except for the unusual fact that they sunk down too far into the snow. He became convinced they were cougar tracks when noticed they appeared to leap over a beaver lodge.
RWED ID no.:	57.

APPENDIX C. Direct and indirect cougar occurrences outside the Northwest Territories (n = 15).

Year:	1983.
Month/Season:	Summer.
Reported to:	Robert Mulders, Wildlife and Fisheries, RWED.
Type:	Visual.
Coordinates:	59° 50' N latitude, 111° 30' W longitude.
Location:	~10mi southwest of Fort Smith.
Additional comments:	Seen in Wood Buffalo National Park.
RWED ID no.:	5.

Year:	1991[2].
Month/Season:	Summer.
Reported to:	Jackie Gerwyn, Alberta Fish and Wildlife Officer.
Type:	Visual.
Coordinates:	58° 41' N latitude, 113° 53' W longitude.
Location:	Garden River.
Additional comments:	The residents of Garden River were apparently attempting to shoot a cougar in their town dump. No conservation, wildlife officers, or wardens saw the cougar, only the local residents of Garden River. The residents were warned not to shoot the animal.
RWED ID no.:	56.

Year:	1992.
Month/Season:	Fall.
Reported to:	Jerry Hordal, Renewable Resources Officer.
Type:	Visual.
Coordinates:	59° 58' N latitude, 123° 00' W longitude.
Location:	Pettitot River.
Additional comments:	One mile south of the NWT border in British Columbia. Two independent reports of cougars were reported to the Renewable Resources Officer from the same area on the same weekend.
RWED ID no.:	12.

[2]Considered a "indirect" occurrence.

Year:	1996.
Month/Season:	September.
Reported to:	Tamara Lamb, Park Warden, Wood Buffalo National Park.
Type:	Visual.
Coordinates:	59° 23' N latitude, 112° 24' W longitude.
Location:	Cherry Mountain in Wood Buffalo National Park.
Additional comments:	He saw the cougar 200 yards ahead of him on the road. When it turned sideways to run it had a tail as long as its body. He stopped to look at the tracks and they were large cat tracks.
RWED ID no.:	43.

Year:	1998.
Month/Season:	Spring.
Reported to:	Tamara Lamb, Park Warden, Wood Buffalo National Park.
Type:	Visual.
Coordinates:	59° 15' N latitude, 112° 26' W longitude.
Location:	~18km north of Peace Point heading to Pine Lake.
Additional comments:	He watched an animal cross the road ahead of him which he thought was a wolf until he saw the greyish tan colour and tail as long as the body. He came within 100 feet of the cougar.
RWED ID no.:	49.

Year:	1999.
Month/Season:	Summer.
Reported to:	Mike Rosen, Instructor Aurora College.
Type:	Visual.
Coordinates:	59° 56' N latitude, 111° 47' W longitude.
Location:	Four-Mile Lake.
Additional comments:	The animal crossed the road in front of him when he was nearing the float plane base early one morning. Observation made by someone from British Columbia and had seen cougars before.
RWED ID no.:	30.

Year:	1999.
Month/Season:	December.
Reported to:	Libby Gunn, Park Warden, Wood Buffalo National Park.
Type:	Visual.
Coordinates:	59° 55' N latitude, 111° 43' W longitude.
Location:	At Halfway.
Additional comments:	Seen a cougar on the road. After watching the cougar leave he looked at the tracks which were large feline tracks.
RWED ID no.:	33.

Year:	1999[3].
Month/Season:	November.
Reported to:	Libby Gunn, Park Warden, Wood Buffalo National Park.
Type:	Tracks.
Coordinates:	59° 47' N latitude, 111° 59' W longitude.
Location:	Grosbeak Lake Trail, Wood Buffalo National Park.
Additional comments:	After a fresh snowfall he spotted large cat tracks and was able to follow them for ~1km until they veered off into heavy timber. Tail drag marks were occasionally clearly visible. The tracks were definitely catlike with no claws showing, about five inches across, and more round than the oblong of canine tracks.
RWED ID no.:	35.

Year:	1999.
Month/Season:	May.
Reported to:	Libby Gunn, Park Warden, Wood Buffalo National Park.
Type:	Visual.
Coordinates:	59° 33' N latitude, 112° 15' W longitude.
Location:	Pine Lake Road, Wood Buffalo National Park.
Additional comments:	In the early morning he saw a large cat on the road with a tail nearly as long as its body. Observation made by someone from British Columbia and had seen cougars before.
RWED ID no.:	37.

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[3]Considered a "indirect" occurrence.

Year:	1999.
Month/Season:	August
Reported to:	Libby Gunn, Park Warden, Wood Buffalo National Park.
Type:	Visual.
Coordinates:	59° 32' N latitude, 112° 15' W longitude.
Location:	Pine Lake Road, Wood Buffalo National Park.
Additional comments:	Saw a cougar walking by the side of the road. As it crossed from east to west the tail was clearly visible.
RWED ID no.:	38.

Year:	1999.
Month/Season:	September.
Reported to:	Tamara Lamb, Park Warden, Wood Buffalo National Park.
Type:	Visual.
Coordinates:	59° 48' N latitude, 110° 06' W longitude.
Location:	Near Andrew Lake lodge east of Fort Smith.
Additional comments:	Seen while guiding with two hunters from Wyoming who also agreed it was a cougar.
RWED ID no.:	44.

Year:	2000.
Month/Season:	May.
Reported to:	Robert Gau, Wildlife and Fisheries, RWED.
Type:	Visual.
Coordinates:	59° 43' N latitude, 111° 50' W longitude.
Location:	Near the hangar at Four Mile Lake, the Fort Smith float plane base.
Additional comments:	The cougar crossed the road from the lake side of the road and went into the woods on the hangar side. The ran into the large opening where the hangar is, paused at the edge of the bush, looked, and swish its tail. A white colour below the tail was observed at the rear when the tail swished.
RWED ID no.:	52.

Year:	2000.
Month/Season:	July.
Reported to:	Libby Gunn, Park Warden, Wood Buffalo National Park.
Type:	Visual.
Coordinates:	59° 30' N latitude, 112° 00' W longitude.
Location:	North of Hay Camp, Wood Buffalo National Park.
Additional comments:	The cougar crossed the road in front of her, stopped and looked back, then entered the bush. The animal had a long "j"-shaped tail, rounded ears, and its coat was tan coloured. The cougar's tracks were ~14cm long and rounded with no visible claw marks.
RWED ID no.:	53.

Year:	2000.
Month/Season:	July.
Reported to:	Libby Gunn, Park Warden, Wood Buffalo National Park.
Type:	Visual.
Coordinates:	59° 33' N latitude, 112° 15' W longitude.
Location:	Pine Lake Road, Wood Buffalo National Park.
Additional comments:	Saw a large cat with a yellowish coat, long tail, and lynx-like ears crossing the road while driving south on Pine Lake Road. Distance was ~30m.
RWED ID no.:	54.

Year:	2001.
Month/Season:	February.
Reported to:	Libby Gunn, Park Warden, Wood Buffalo National Park.
Type:	Visual.
Coordinates:	59° 01' N latitude, 111° 52' W longitude.
Location:	Road between Peace Point and Carlson's Landing, Wood Buffalo National Park.
Additional comments:	While travelling from Fort Smith to Fort Chipewyan the observers watched a cougar crossing the road from north to south about 150m away. J-shaped tail clearly seen. It stopped and looked at the vehicle before jumping over the bank into some dense spruce.
RWED ID no.:	63.